Claims

[c1]   1.A method for processing a compressed bitstream comprising video data, the method comprising:

parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

storing a reference sub-region identified by the motion information in a first memory before performing motion compensation using the set of motion vectors; and

performing motion compensation on the video data using the reference sub-region stored on the first memory.

[c2]   2.The method of claim 1 wherein the first memory source is an on-chip memory source.

[c3]   3.The method of claim 1 wherein storing the reference sub-region in the first memory comprises performing a direct memory access based on the motion vector.

[c4]   4.The method of claim 3 wherein the second memory source is an off-chip memory source and the direct memory access includes accessing the second memory source.

[c5]   5.The method of claim 1 further comprising storing the motion information in the first memory.

[c6]   6.The method of claim 1 wherein obtaining motion information comprises extracting and decoding the set of motion vectors from the compressed bitstream.

[c7]   7.The method of claim 1 wherein the time that the reference sub-region is stored in the first memory before performing motion compensation using the set of motion vectors comprises the time required for to complete a direct memory access to store the reference sub-region in the first memory.

[c8]   8.The method of claim 1 wherein the time that the reference sub-region is stored in the first memory before performing motion compensation using the set of motion vectors comprises an estimated time for a processor to reconstruct one macroblock.

[c9]   9.The method of claim 1 wherein storing the reference sub-region further comprises storing multiple reference sub-regions.

[c10]   10.The method of claim 9 wherein the multiple reference sub-regions are included in a reference window, the reference window comprising a set of reference window sub-regions.

[c11]   11.The method of claim 10 further comprising:
creating the reference window comprising the set of reference window sub-regions, the set of reference window sub-regions including the reference sub-region identified by the set of motion vectors; and
storing the set of reference window sub-regions in the first memory source.

[c12]   12.The method of claim 11 wherein the reference window has a trapezoidal array of reference window portions.

[c13]   13.The method of claim 12 the reference sub-region identified by the motion information is the upper left reference window sub-region in the trapezoidal array.

[c14]   14.The method of claim 1 wherein the video data comprises a macroblock.

[c15]   15.The method of claim 1 further comprising converting the motion information to an DMA instruction.

[c16]   16.The method of claim 1 further comprising obtaining motion information from a second compressed bitstream and performing motion compensation on video data included in the second compressed bitstream.

[c17]   17.A method for processing a compressed bitstream comprising video data, the method comprising:
parsing a portion of the compressed bitstream before motion compensation on

video data included in the portion;

obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

storing a set of reference window sub-regions included in a reference window in a first memory before motion compensation using the motion information, wherein the set of motion vectors references a reference window sub-region in the set of reference window sub-regions; and

performing motion compensation on the video data using the reference sub-region stored on the first memory.

[c18]   18. The method of claim 17 further comprising:

creating the reference window comprising the set of reference window sub-regions, the set of reference window sub-regions including the reference sub-regions identified by the motion information; and

storing the set of reference window sub-regions in the first memory source.

[c19]   19. The method of claim 17 wherein the reference window has a trapezoidal array of reference window sub-regions.

[c20]   20. The method of claim 17 the reference sub-region identified by the motion information is the upper left reference window sub-region in the reference window.

[c21]   21. A system for processing a compressed bitstream comprising video data, the system comprising:

means for parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

means for obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

means for storing a reference sub-region identified by the motion information in a first memory before performing motion compensation using the set of motion vectors; and

means for performing motion compensation on the video data using the reference sub-region stored on the first memory.

[c22]   22.The method of claim 21 further comprising means for extracting and decoding the motion information from the compressed bitstream.

[c23]   23.The method of claim 21 further comprising means for creating a reference window comprising the set of reference window sub-regions, the set of reference window sub-regions including the reference sub-region identified by the motion information.

[c24]   24.A computer readable medium including instructions for processing a compressed bitstream comprising video data, the instructions comprising:
instructions for parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;
instructions for obtaining motion information related to the video data, the motion information comprising a set of motion vectors;
instructions for storing a reference sub-region identified by the motion information in a first memory before performing motion compensation using the set of motion vectors; and
instructions for performing motion compensation on the video data using the reference sub-region stored on the first memory.